

## ISOLATED FRACTURE OF THE GREAT TROCHANTER.

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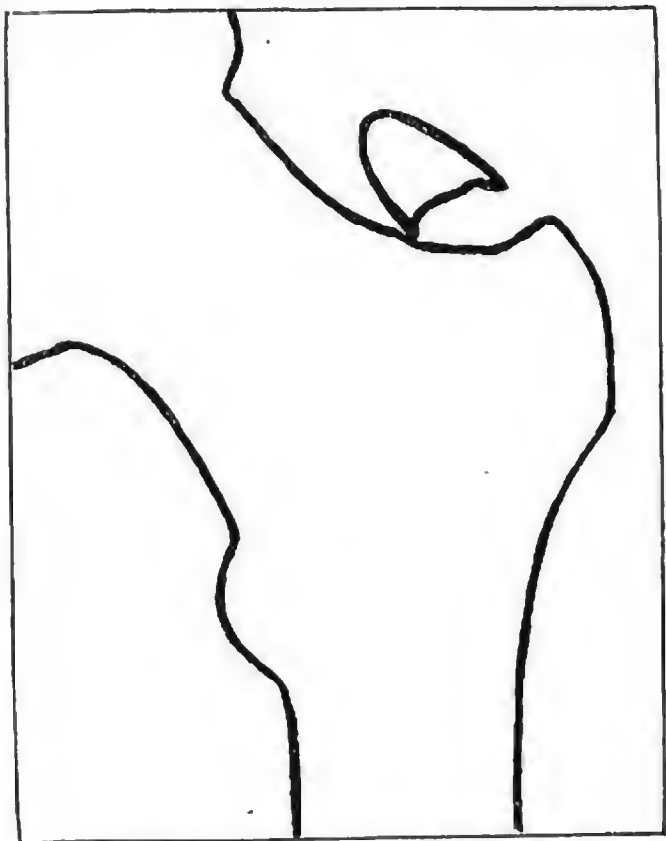
J. M., AGED thirty-three years, was admitted to the Montreal General Hospital November 3, 1906, complaining of pain in the right thigh and inability to move the right leg. Physically, he was an unusually well-developed muscular fellow. While performing his duties as slipper in a large milling company, he was struck on the right thigh just behind the trochanter major by a falling bag of flour, weighing 140 pounds. He was alone at the time, but succeeded in walking on the left leg with the support of a flour-carrier to the stair, where he got help. On examining him a marked swelling was observed in the region of the right trochanter. Light pressure caused pain and there was considerable surrounding ecchymosis. There was no shortening of the leg. He could move his leg a little in all directions. No crepitus could be made out. There was no outward rotation or any relaxation of the tensor vaginæ femoris fascia. The X-rays showed a separation of the great trochanter from the femur at the outer part, the inner part apparently remaining attached by periosteum and fibrous tissue. The leg, slightly flexed at the hip and knee, was strongly abducted, and together with the pelvis immobilized in a plaster-of-Paris spica bandage. The limb was neither rotated outward nor inward, the toes pointing in a normal direction.

He left the hospital January 18, 1907. On March 20 he returned for examination, walking perfectly well; no limping was discernible. Another X-ray photograph was taken which seemed to show bony union between the apophysis and shaft.

This fracture is one of unusual rarity. Morris was able to collect only 6 undoubted cases. Stimson<sup>1</sup> refers to 7 museum specimens, 2 of which were obtained in the dissecting room without history. Ewart<sup>2</sup> reports a spontaneous fracture through the great trochanter of the left femur in a female

sixty-five years of age, a subject of *mollities osseum*. While walking with a stick and leaning on her daughter's arm they both heard a crack and the patient subsided to the ground.

FIG. 1.

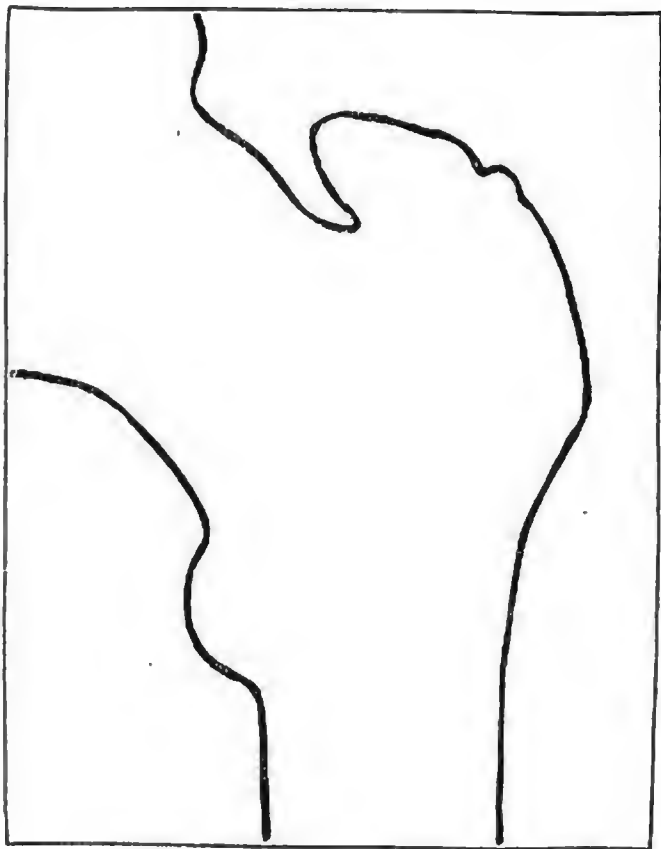


Tracing of X-ray taken shortly after admission to hospital.

A diagnosis of extracapsular fracture of the femur was made. A skiagram taken three weeks later showed the fracture to be through the great trochanter. Another skiagram taken at the

ninth week showed the fracture had united with osseous union, a large amount of osseous callus being present. Eleven weeks after the accident the patient was able to go out in a chair and suffered no pain.

FIG. 2.



Tracing of X-ray taken four and one-half months after the accident.

As there was one inch shortening in this case, it may be objected that the fracture here extended through the neck and

FIG. 3.



X-ray taken shortly after admission to the hospital.

so was not an example of isolated fracture of the great trochanter.

The fracture has generally been the result of direct violence applied outside and behind the trochanter or from a fall upon the hip.

Neck<sup>a</sup> reports an instance of fracture of the trochanter major from muscular contraction. It occurred in a laborer twenty-four years of age, who while engaged with another man in lifting a heavy sack, twisted his body and felt a severe pain in the region of the left hip. The injury did not compel him to stop work immediately, but the pain continued, was increased by movement and sometimes a creaking noise was felt. Seven weeks after the injury there was felt on the outer side in the neighborhood of the trochanter major a disc-shaped piece of bone the size of a two-mark piece. During rest in bed a strong callus was thrown out and fourteen days later, through an incision made with a view to suture, the piece was found to be no longer moveable. In this case it seems probable that while the leg was fixed in a position of inner rotation, the forcible twisting to the left of the body while lifting the heavy sack caused a piece of the great trochanter to be torn off.

The amount of displacement of the fragment varies and depends upon whether the epiphysis together with the periosteum and fibrous tissues have been completely torn away from the diaphysis or not. When there is no marked displacement of the fragment (the patient is a stout, well-muscled individual) and a good deal of swelling is present at the time, the condition may very readily be mistaken for a severe contusion. When the fragment is completely torn away from the femur, it may be drawn upward and backward as much as 6 cm. from its normal position. There may then be apparent a depression in the normal situation of the trochanter not present in the opposite side. Crepitus may sometimes be obtained by pushing the fragment downwards while the leg is well abducted and rotated outwards.

The prognosis would seem to depend partly upon the degree of detachment of the fragment. If completely separ-

ated it is altogether likely that union occurs by pseudoarthrosis. When the periosteum and fibrous tissues are only partly separated bony union may take place. The separation generally follows the epiphyseal line.

In regard to treatment it would appear that when the fragment remains partly attached to the shaft a perfect functional result may be obtained by rest in bed and immobilization of the limb in an abducted position. I have seen no reports of the functional result in cases where the fragment has been completely detached and elevated several cm. from its normal position, and in which union has occurred by means of a false joint. Modern technique, however, renders it safe to replace and retain the fragment by sutures passed through it or through its tendinous attachments or by holding it in place with a peg.

Bennett reports a specimen of fracture of the trochanter minor in the museum of Trinity College, Dublin, associated with intracapsular fracture of the neck.

Traumatic separation of the epiphysis of the trochanter major under the age of eighteen has occurred more frequently than has fracture in adults. Poland<sup>4</sup> was able to collect 12 cases of separation of the epiphysis of the great trochanter. Thienhaus<sup>5</sup> reports an instance in a little girl eleven years of age who was violently thrown down on the floor by her school-mate who pushed her unexpectedly from behind. During her fall she struck heavily upon her left hip. Although suffering pain she was able to limp home, a distance of one mile. The following morning she was unable to rise from her bed. A diagnosis of contusion was made by her physician. Thienhaus was unable to reach a definite diagnosis without a skiagram, which showed an incomplete separation of the epiphysis of the great trochanter. In 5 cases death followed within a few weeks after the violence which was thought to have caused the separation, and was preceded by fever and suppuration along the upper part of the bone.

The only definite means of positive diagnosis is a Röntgen-ray picture. It is quite possible that the lesion occurs more

frequently than thought, and is treated under the diagnosis of contusion.

## REFERENCES.

- <sup>1</sup> Stimson. Fractures and Dislocations, 1905, p. 341.
- <sup>2</sup> Ewart. Lancet, Lond., 1901, 124.
- <sup>3</sup> Neck. Zentra. für Chir., 1903, p. 1447.
- <sup>4</sup> Poland. Traumatic Separation of the Epiphysis, London, 1898.
- <sup>5</sup> Thienhaus. ANNALS OF SURGERY, 1906, xliii, p. 753.